CLAIMS

1. Fusion transcript consisting of a homologue cross-over between two different genes with more than 80% sequence homology in certain regions, in particular regions of cross-over.

2. Fusion transcript according to claim 1, wherein the two genes are the genes of SCCA1 and SCCA2.

3. Full length fusion transcript protein between SCCA1 and SCCA2 having switched reactive site loops compared to basic promoter.

4. Substantially full length fusion transcript protein between SCCA1 and SCCA2 having switched reactive site loops compared to basic promoter.

5. A fusion protein according to claim 4 coded by one or more of exons 2-7 of SCCA1 gene fused to exon 8 of SCCA2 gene.

6. A fusion protein according to claim 1 coded by exon 2 – 7 of SCCA1 gene fused to exon 8 of SCCA2 gene.

7. A fusion protein according to claim 4 coded by one or more of exons 2-7 of SCCA2 gene fused to exon 8 of SCCA1 gene.

8. A fusion protein according to claim 1 coded by exon 2 – 7 of SCCA2 gene fused to exon 8 of SCCA1 gene.

9. A fusion protein according to claim 5, wherein the protein sequence is
MNSLSEANTK FMFDLFQQFR KSKENNIFYS PISITSALGM VLLGAKDNTA QQIKKVLHFD QVTENTTGKA ATYHVDRSGN VHHQFQKLLTE FNKSTDAYE LKIANKLFGE KTYLFLQEYL DAIKKFYQTS VESVDFANAP EESRKKINSW VESQTNEKIK NLIPEGNIGS NTTLVLVNAI YFKGQWEKKF NKEDTKEEKF WPNKNTYKSI QMMRQYTSFH FASLEDVQAK VLEIPYKGKD LSMIVLLPNE IDGLQKLEEK LTAEKLMEWT SLQNMRETCV DLHLPRFKME ESYDLKDTLR TMGMVNIFNG DADLSGMTWS HGLSVSKVLH KAFVEVTEEG VEAAAATAVV VVELSSPSTN EEFCCNHPFL FFIRQNKTNS ILFYGRFSSP

10. A DNA sequence coding for a fusion SCCA1/SCCA2 protein.

11. A DNA sequence comprising the nucleotide sequence of exon 2-7 of SCCA1 fused to the nucleotide sequence of exon 8 of SCCA2.

12. A DNA sequence according to claim 11, wherein the nucleotide sequence is
ATGAATTCAC TCAGTGAAGC CAACACCAAG TTCATGTTCG ACCTGTTCCA ACAGTTCAGA
AAATCAAAAG AGAACAACAT CTTCTATTCC CCTATCAGCA TCACATCAGC ATTAGGGATG
GTCCTCTTAG GAGCCAAAGA CAACACTGCA|CAACAGATTA AGAAGGTTCT TCACTTTGAT
CAAGTCACAG AGAACACCAC AGGAAAAGCT GCAACATATC ATGTTGATAG GTCAGGAAAT
GTTCATCACC AGTTTCAAAA GCTTCTGACT GAATTCAACA AATCCACTGA TGCATATGAG
CTGAAGATCG CCAACAAGCT CTTCGGAGAA AAAACGTATC TATTTTTACA GGAATATTTA
GATGCCATCA AGAAATTTTA CCAGACCAGT GTGGAATCTG TTGATTTTGC AAATGCTCCA
GAAGAAAGTC GAAAGAAGAT TAACTCCTGG GTGGAAAGTC AAACGAATGA AAAAATTAAA
AACCTAATTC CTGAAGGTAA TATTGGCAGC AATACCACAT TGGTTCTTGT GAACGCAATC
TATTTCAAAG GGCAGTGGGA GAAGAAATTT AATAAAGAAG ATACTAAAGA GGAAAAATTT
TGGCCAAACA AGAATACATA CAAGTCCATA CAGATGATGA GGCAATACAC ATCTTTTCAT
TTTGCCTCGC TGGAGGATGT ACAGGCCAAG GTCCTGGAAA TACCATACAA AGGCAAAGAT
CTAAGCATGA TTGTGTTGCT GCCAAATGAA ATCGATGGTC TCCAGAAG CT TGAAGAGAAA
CTCACTGCTG AGAAATTGAT GGAATGGACA AGTTTGCAGA ATATGAGAGA GACATGTGTC
GATTTACACT TACCTCGGTT CAAAATGGAA GAGAGCTATG ACCTCAAGGA CACGTTGAGA
ACCATGGGAA|TGGTGAATAT CTTCAATGGG GATGCAGACC TCTCAGGCAT GACCTGGAGC
CACGGTCTCT CAGTATCTAA AGTCCTACAC AAGGCCTTTG TGGAGGTCAC TGAGGAGGGA
GTGGAAGCTG CAGCTGCCAC CGCTGTAGTA GTAGTCGAAT TATCATCTCC TTCAACTAAT
GAAGAGTTCT GTTGTAATCA CCCTTTCCTA TTCTTCATAA GGCAAAATAA GACCAACAGC
ATCCTCTTCT ATGGCAGATT CTCATCCCCA

13. Plasmid comprising the nucleotide sequence corresponding to one or more of exons 2-7 of SCCA1 gene fused to exon 8 of SCCA2 gene.

14. Plasmid comprising the nucleotide sequence corresponding to exons 2-7 of SCCA1 fused to the nucleotide sequence of exon 8 of SCCA2.

15. Plasmid comprising the nucleotide sequence corresponding to one or more of exons 2-7 of SCCA2 gene fused to exon 8 of SCCA1 gene.

16. Plasmid comprising the nucleotide sequence corresponding to exons 2-7 of SCCA2 gene fused to exon 8 of SCCA1 gene.

17. Plasmid according to claims 13-14, comprising the nucleotide sequence of claim 12, and deposited at ECACC under deposition number ECACC 01031315.

18. Protein expression system for production of SCCA1/SCCA2 fusion protein

19. Recombinant bacteria comprising a plasmid according to claims 13-17.

20. Recombinant bacteria comprising a plasmid according to claim 14.

21. Recombinant E. coli comprising a plasmid according to claim 13.

22. Recombinant E. coli comprising a plasmid according to claim 14.

23. Method for detecting the gene rearrangement forming the SCCA1/SCCA2 fusion protein using a cDNA cloning and sequencing analysis of tumor DNA.

24. Method for detecting the gene rearrangement forming the SCCA2/SCCA1 fusion protein using a cDNA cloning and sequencing analysis of tumor DNA.

25. Method for detecting the gene rearrangement forming the SCCA1/SCCA2 fusion protein using a Southern blot-technology applied on tumor DNA.

26. Method for detecting the gene rearrangement forming the SCCA2/SCCA1 fusion protein using a Southern blot-technology applied on tumor DNA.

27. Method for detecting the gene rearrangement forming the SCCA1/SCCA2 fusion protein using a PCR-analysis technology.

28. Method for detecting the gene rearrangement forming the SCCA2/SCCA1 fusion protein using a PCR-analysis technology.

29. Method for detecting the gene rearrangement forming the SCCA1/SCCA2 fusion protein using an amino acid sequencing technology.

30. Method for detecting the gene rearrangement forming the SCCA2/SCCA1 fusion protein using an amino acid sequencing technology.

31. Method for detection the SCCA1/A2 fusion protein using Western blotting

32. Method for detection the SCCA2/A1 fusion protein using Western blotting

33. Monoclonal antibody specific for SCCA1/SCCA2 fusion protein.

34. Monoclonal antibody specific for SCCA2/SCCA1 fusion protein.

35. Polyclonal antibody reactive with SCCA1/SCCA2 fusion protein.

36. Monoclonal antibody specific for SCCA2/SCCA1 fusion protein.

37. Immunoassay using a monoclonal antibody or polyclonal antibody specific for SCCA1/SCCA2 fusion protein for detecting the presence and concentration of SCCA1/SCCA2 fusion protein.

38. Immunoassay using a monoclonal antibody or polyclonal antibody specific for SCCA2/SCCA1 fusion protein for detecting the presence and concentration of SCCA2/SCCA1 fusion protein.

39. Method for diagnosing the presence or absence of a squamous cell carcinoma by detecting the SCCA1/SCCA2 fusion protein in a human sample.

40. Method for diagnosing the presence or absence of a squamous cell carcinoma by detecting the SCCA2/SCCA1 fusion protein in a human sample.

41. Method according to claims 39-40, wherein the fusion protein is used in a histochemical analysis.

42. Kit comprising a SCCA1/SCCA2 fusion protein antibody to be used in the determination of the presence or absence of squamous cell carcinoma (SCC).

43. Kit comprising a SCCA2/SCCA1 fusion protein antibody to be used in the determination of the presence or absence of squamous cell carcinoma (SCC).

44. Kit according to claim 42-43, in that it further comprises antibodies related to SCCA1 and/or SCCA2.